

Improvements in or relating to pipe couplings

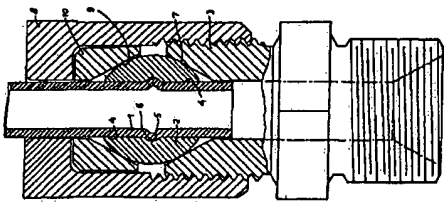
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Abstract of GB841869

841,869. Pipe couplings. HEADLAND Ltd., T. P. Oct. 3, 1956 [Oct. 6, 1955], No. 28489/55. Addition to 770,425. Class 99(1). In the coupling described in the parent Specification wherein a seating member 2 is bored to fit over the end of a pipe 1 and has a surface which is fixed with respect to and is engageable with a surface on a seating member 3 to form a fluid-tight seal therebetween, the bore of the member 2 has a groove 5 extending radially outwards therefrom and is secured in position on the pipe by bulging the material of the pipe radially outwards to fill or substantially fill the groove. The member 2 may be in the form of a ball or a double cone and be of steel or polytetrafluoroethylene. Specification 770,424 also is referred to.

641555 CEMENTITE SPRING
1. 1/2" DIA. x 1.5" LONG
2. 1/2" DIA. x 1.5" LONG



Improvements in or relating to pipe couplings

Description of GB841869

PATENT SPECIFICATION

DRAWINGS ATTACHED.

Inventor:-SIDNEY WALTER PROSSER.

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(Patent of Addition to No 770,425, dated May 5, 1955).

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Index at Acceptance:-Class 99 (1), G 22 B, G 24 E(2: 6).

International Classification:-F 061.

COMPLETE SPECIFICATION.

Improvements in or relating to Pipe Couplings.

We, Tuos P HEADLAND LWITED, a British Company, of 164/168 Westminster Bridge Road, London, S E 1, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:-

The present invention relates to pipe couplings, for example, couplings for oil and other pipes and is a modification of the pipe coupling means according to our Specification

No 770,425.

According to that Specification, there is provided coupling means for a pipe, comprising a seating member which is bored and fits over the end of the pipe, said seating member being secured in position against movement in relation to the pipe Preferably, in accordance with the said Specification the seating member is a ball which is secured in position by bulging the pipe outwardly on either side of the ball.

According to the present invention, a coupling means for a pipe comprises a first seating member which is bored to fit over the end of the pipe, and which has a surface which is fixed with respect to and is engageable with a surface on a further seating member to form a fluid-tight seal therebetween, the bore of the first seating member having a groove extending radially outwards therefrom and being secured in position on the pipe by bulging the material of the pipe radially outwards to fill or substantially fill the said groove.

The invention also comprises a method of securing the first seating member on a pipe, comprising fitting the first seating member onto the pipe and bulging the material of the pipe radially outwards so as to fill or substantially fill the said groove of the first seating member.

Preferably the bulge is effected by longitudinally compressing the pipe 45 In order that the present invention may be more readily understood reference will now be made to the accompanying drawing which shows a section through one specific embodiment thereof 50 In the drawing there is shown a pipe 1 and a first seating member 2 on to which seats the mouth of a further seating member in the form of a union member 3 to which the pipe 1 is to be connected This first seating member 2 is in the form of a ball which is centrally bored at 4 and provided with a groove 5 extending radially outwards of the bore substantially centrally of the ball, as shown The ball 2 may be made from any 60 material found suitable: it may be, for example, an annealed steel ball or the ball may be surface hardened or rendered corrosion-resistant or made from corrosion-resistant material Alternatively, the ball 65 may be made from resilient material to withstand high vibration: for example it may be made from poly-tetra-fluorethylene or other organic plastic substance The bored ball is passed over the end of the pipe 70 In order to secure the ball 2 on the pipe 1, a short portion of the latter projecting from the ball is rigidly held in a suitable clamp, a

closely-fitting mandrel being located in the pipe to prevent crushing, and a part of the 75 pipe on the opposite side of the ball is gripped tightly Longitudinal compression is then applied to the pipe as a result of which the material will have a tendency to expand.

However, owing to the presence of the 80 mandrel within the pipe, it cannot expand inwards but only outwards As the only place 841,869 A 841,869 at which it can expand outwards is within the ball 2 at the location of the groove 5, it will therefore bulge radially outwards so as to fill the groove with a radial bulge, or the like rib 6 by a cold flow or cold forging action thus sealing the ball around the pipe and locking it in position Owing to the fact that no external heat is applied to the pipe on the ball no local stresses are set up in the material and the result is a strong vibration-withstanding joint, the outer faces of the bulge or rib 6 being in intimate contact with the walls of the groove 5.

The groove 5 may be made by any suitable under-cutting tool having, for example, an expansible cutting bit Such tools are well known in the art to which this invention relates and therefore need not be further described here.

Whilst longitudinal compression has been described as the preferred method of forming the radial bulge or rib 6, it will be understood that it may be made in any other desired way.

Moreover, whilst a suitable tool for forming the rib is described in our Specification No.

770,424 it should be understood that any other tool found suitable may be used.

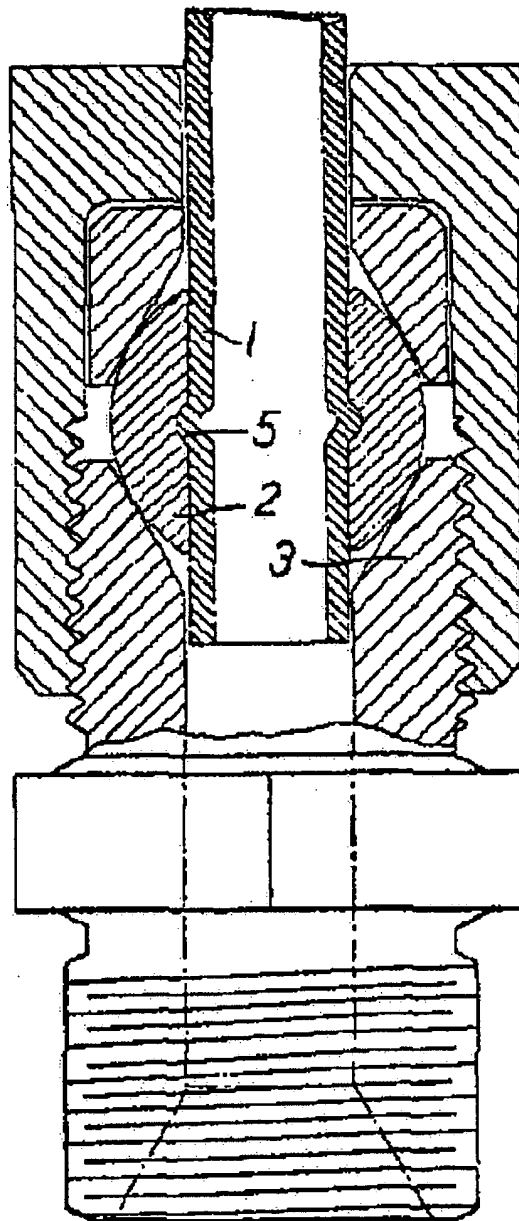
A pipe provided with a seating member as described above may be coupled to another pipe or to a vessel for example.

In the drawing the union member 3 has a tapered seat 7 and the ball 2 is held in contact on said seat by means of the nut S that has a similarly tapered seat 9 contacting the opposite side of the ball Preferably the seat 9 is located in a thimble 10 separate from the nut 8 but the nut and seat may be integrally formed if desired.

The union member 3 may be doubleended as shown so that another pipe may be secured to the pipe 1 Alternatively, the union member 3 may be secured in any desired fashion to a vessel for example an oil tank so that the pipe 1 may be connected thereto and removed therefrom as desired.

It is to be clearly understood that the invention is to be in no way limited by the embodiment hereinbefore described modifications of which can be made without departing from the scope thereof as defined by the appended claims For example, the first seating member 2 need not necessarily be in the form of a ball: it could be in the form of a double cone Again, the radially extending groove 5 in the bore of the first seating member, although preferably, need not necessarily be centrally located in the first seating member Moreover, the shape of the groove 5 and of the radial bulge or rib 6 may be modified as circumstances dictate 60 or permit.

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